College of Arts and Sciences
Department of Physics
Course Syllabus

1 Credit hour

PHYS –154L: General Physics II Lab

I. Course Description

This is a laboratory class designed to accompany PHYS 154 General Physics II. Selected experiments in physics are conducted. Pre-requisites: PHYS 153, PHYS 153L. Co-requisites: PHYS 154 or completion of Physics 154.

II. Rationale

General Physics II Lab is a one-semester laboratory course for science majors covering the basic concepts in physics. The course is designed to accompany the lecture course, General Physics II (PHYS 154). In the laboratory, the student will gain hands-on experience with the principles and laws discussed in the lecture course. Some topics to be covered are linear expansion, specific heat, viscosity, surface tension, simple harmonic motion, interference, electronic circuits, joule's law, spectrometry, sound, magnetism, heat, optics, and electrolysis.

III. Competencies

- *Personal and Professional Responsibility*. Students will demonstrate personal and professional proficiencies in pursuit of academic excellence in all courses pursued.

- *Subject Matter and Presentation Skills.* Performance in courses as evidenced by final grades will document success levels in the mastery of subject matter, written and oral communication skills.

- *Planning and Organization*. Students will demonstrate ability to plan and organize personal and professional skills. Students will also demonstrate an ability to generalize techniques to structure activities that will impact teaching and learning.

IV. Behavioral Objectives

At the end of this course, the student will be able to:

- Understand the physical environment and its relationship to man

- Understand scientific laws, principles, and theories
- Think critically and independently and be able to reason effectively
- Be proficient in oral articulation and written expression
- Be adept in general and scientific terminology

V. Course Content

- Coefficient of Linear Expansion
- Specific Heat
- Heat of Fusion
- Viscosity
- Surface Tension
- Simple Spectrometer
- Optical Bench
- Shallowing Effect
- Interference
- Simple Harmonic Motion
- Melde's Experiment
- Sonometer
- Resonating Columns
- Electric Fields
- Wheatstone Bridge-Slide-wire Form
- Wheatstone Bridge-Box Form
- Potentiometer-Slide-wire Form
- Potentiometer-Box Form

- Electrolysis
- Joule's Law
- Earth's Magnetic Field
- Magnetometer
- Tangent Galvanometer
- Dynamo
- AC Wheatstone Bridge
- LRC Circuits
- Resonance in AC Circuits
- Transistor Amplifier

VI. Learning Activities

Writing Lab reports from Lecture/Note-taking
Class Discussions
Problem-Solving

VII. Special Course Requirements

The *Laboratory Manual* is provided by the Department of Physics through the instructor when the student presents a validated fee sheet.

VIII. Evaluation Procedures

The grade in this course will be based solely upon the number and quality of laboratory reports that are submitted to the instructor. The laboratory report is to have the following parts:

1. Student's Name
2. Exercise Number
3. Title of the Exercise
4. Purpose or Objective
5. Theory
6. Procedure and Materials

7. Data and Results
8. Conclusions

Grading scale:	A	=	90 or more points
	B	=	80 – 89 points
	C	=	70 – 79 points
	D	=	60 – 69 points
	F	=	59 or below

Cheating will not be tolerated in any form. As a minimum, students will be given a grade of zero for any quiz or exam in which cheating, fraud, or mis-representation is found.

IX. References

Textbook:

General Physics, Physics 154 Lab Manual

Recommended Journals

The Physics Teacher
Physics Today
Computing in Science & Engineering
Journal of Undergraduate Research
Journal of College Science Teaching

ADA Assurance Statement

Grambling State University adheres to all applicable Federal, State and Local laws, regulations, and guidelines with respect to providing reasonable accommodations, for students with disabilities. Students with disabilities should register with the ADA student services coordinator and contact their instructor(s) in a timely manner to arrange for appropriate accommodations. If you need accommodations in this class related to a disability, please make an appointment as soon as possible.